

SEQUENCE LISTING

<110> RUSCH, Douglas et al

<120> ISOLATED HUMAN KINASE PROTEINS, NUCLEIC
ACID MOLECULES ENCODING HUMAN KINASE PROTEINS, AND USES
THEREOF

<130> CL001099-CIP-DIV2

<140> To be assigned

<141> 2003-10-31

<140> 10/274,878

<141> 2002-10-22

<150> 09/849,334

<151> 2001-05-07

<150> 09/773,371

<151> 2001-02-01

<160> 4

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 2469

<212> DNA

<213> Homo sapiens

<400> 1

tcgcggccca ggtggcgcgg gcggccctag cccggctgcg gagcgctgcg cgagcggcgg 60
gctggctgac cccgaggac ccccagcgca gcgggtgcgg cgatgatcct ggaggagagg 120
ccggacggcg cgggcggccgg cgaggagac ccgcggctgc agatatctag gagaaaaccc 180
aggaaaacac gtgtgagctc ttacgggaa agacggaaag gcctgagaga cgtgtgtgcg 240
tggagagggt gtcgggtcca cagagggaa gacccagtgc gtgtgcacgt tggccccatg 300
aatccgcagc ttcatgcagt gggctgtgac tccctgacgc agatccagtg cggccagctg 360
cagagccgca gggcccagat tcaccagcag attgacaagg agctgcagat gcggacggc 420
gctgagaacc tctacagagc caccagcaac aaccgggtga gagagacggc cgccctggag 480
ctgagctacg tcaactccaa cctgcagctg ctgaaggagg agctggagga gctcagcgg 540
ggcgtggacc ctggccggca tgggagcga gctgtcactg tccccatgat cccctggc 600
ctgaaggaga ccaaggagct ggactggct acaccgctga aggagctgat ctcagtgcac 660
tttggagagg acggcgccctc ctacgaggca gaaatcagg agctggaggc cctgcggcag 720
gccatgcgga cccccagccg gaatgagtcg ggcctggagc tgctcacagc ctattacaac 780
cagctgtgct tcctggatgc ggcgttcctc accctgcca ggagcctcgg gctttcttc 840
cactggtacg actcgcttac tgggtcccg gcccagcagc gtgccttgc cttcgagaag 900
ggcagcgttc tcttcaacat cggtgccctc cacacgcaga ttggggcgcg ccaggaccgc 960
tcctgcaccg agggtgcccgg ccgcgcatacg gaggccttc agagggccgc tggggccttc 1020
agccctcctga gggagaactt ctcccatgcg ccgagccag acatgagcgc tgcgtccctc 1080
tgcgcactgg agcagctcat gatggcccg gcccaggaat gtgtgtttga gggcctctca 1140
ccacctgcct ccatggccccc ccaagactgc ctggccctgc tgcccttgc gcaggaggcc 1200
gcccaagggtgg cagccgagta caggctagtg caccggacca tggcccagcc acccgccac 1260
gactacgtgc ctgtctccctg gactgcctcg gtgcacgtca aggccgagta cttccgcctcc 1320
ctggcccact accacgttagc catggccctc tgccacggct ccccaagcgcac cgaggagag 1380
ctccccacgc acgagcaggt ctccctgcag ccccccacct cctctaagcc ccgaggccct 1440

gtgctgccgc aggagctgga ggagcgcagg cagctggca aggcacacct gaagcgtgcc 1500
 atcctggggc aggaggaggc gctgcggctg cacgcctgt gccgcgtcct gcgcgaggtg 1560
 gacctgcttc gggctgtat ctccccagacg ctgcagcgt cactggccaa gtatgcggag 1620
 ctcgaccgtg agatgactt ctgtgaggct gccgaggccc cggacatcca gcctaagacc 1680
 caccagaagc cagagggcag gatgccacgc ctgtcccagg ggaaggggcc tgacatcttc 1740
 catcggtgg ggcgcgttc tggctctca gccaagaacc ggtggcggt ggtggggccc 1800
 gtccacactga cccgaggaga gggcggttt ggcctcacgc ttccgggaga ctcgcctgtc 1860
 ctcatcgctg ccgtcattcc agggagccag gccgcggcgg ctggcctgaa ggagggcgac 1920
 tacattgtgt cagtgaatgg gcagccatgc aggtggtgg aacacgcgga ggtggtgacg 1980
 gagctgaagg ctgcgggaga ggcgggcgc acgctgcagg tggctgcgt gctgcccagc 2040
 tctagactgc ccagcttggg ggaccgcgg cccgtcctgc tggcccccag ggggcttcta 2100
 aggagccaga gggagcatgg ttgcaagacc ccggcatcca cgtggccag tccccggccc 2160
 ctccctcaact ggagccaaa ggcgcagcag ggcaagactg gaggctgccc ccagccctgt 2220
 gcccagtga agccagctcc gcctcatcc ttgaagcacc cagggtggcc gtgagggcca 2280
 ggatccctgc acgcctcag ccctggctcc agctggcagc aacgcaccgag catgcctcc 2340
 ccacccagag gacctccggg caatgcctgt cccgcctcat gctggaggt gcctcggca 2400
 cctgcctgcc cattaaagac tggtcagacc tgtctgaaaa aaaaaaaaaa aaaaaaaaaa 2460
 aaaaaaaaaa 2469

<210> 2
 <211> 723
 <212> PRT
 <213> Homo sapiens

<400> 2
 Met Ile Leu Glu Glu Arg Pro Asp Gly Ala Gly Ala Gly Glu Glu Ser
 1 5 10 15
 Pro Arg Leu Gln Ile Ser Arg Arg Lys Pro Arg Lys Thr Arg Val Ser
 20 25 30
 Ser Leu Arg Gly Arg Arg Glu Gly Leu Arg Asp Val Cys Ala Trp Arg
 35 40 45
 Gly Cys Arg Val His Arg Gly Glu Asp Pro Val Arg Val His Val Gly
 50 55 60
 Pro Met Asn Pro Gln Leu His Ala Val Gly Cys Asp Ser Leu Thr Gln
 65 70 75 80
 Ile Gln Cys Gly Gln Leu Gln Ser Arg Arg Ala Gln Ile His Gln Gln
 85 90 95
 Ile Asp Lys Glu Leu Gln Met Arg Thr Gly Ala Glu Asn Leu Tyr Arg
 100 105 110
 Ala Thr Ser Asn Asn Arg Val Arg Glu Thr Val Ala Leu Glu Leu Ser
 115 120 125
 Tyr Val Asn Ser Asn Leu Gln Leu Leu Lys Glu Glu Leu Glu Leu
 130 135 140
 Ser Gly Gly Val Asp Pro Gly Arg His Gly Ser Glu Ala Val Thr Val
 145 150 155 160
 Pro Met Ile Pro Leu Gly Leu Lys Glu Thr Lys Glu Leu Asp Trp Ser
 165 170 175
 Thr Pro Leu Lys Glu Leu Ile Ser Val His Phe Gly Glu Asp Gly Ala
 180 185 190
 Ser Tyr Glu Ala Glu Ile Arg Glu Leu Glu Ala Leu Arg Gln Ala Met
 195 200 205
 Arg Thr Pro Ser Arg Asn Glu Ser Gly Leu Glu Leu Leu Thr Ala Tyr
 210 215 220
 Tyr Asn Gln Leu Cys Phe Leu Asp Ala Arg Phe Leu Thr Pro Ala Arg
 225 230 235 240
 Ser Leu Gly Leu Phe Phe His Trp Tyr Asp Ser Leu Thr Gly Val Pro
 245 250 255

Ala Gln Gln Arg Ala Leu Ala Phe Glu Lys Gly Ser Val Leu Phe Asn
 260 265 270
 Ile Gly Ala Leu His Thr Gln Ile Gly Ala Arg Gln Asp Arg Ser Cys
 275 280 285
 Thr Glu Gly Ala Arg Arg Ala Met Glu Ala Phe Gln Arg Ala Ala Gly
 290 295 300
 Ala Phe Ser Leu Leu Arg Glu Asn Phe Ser His Ala Pro Ser Pro Asp
 305 310 315 320
 Met Ser Ala Ala Ser Leu Cys Ala Leu Glu Gln Leu Met Met Ala Gln
 325 330 335
 Ala Gln Glu Cys Val Phe Glu Gly Leu Ser Pro Pro Ala Ser Met Ala
 340 345 350
 Pro Gln Asp Cys Leu Ala Gln Leu Arg Leu Ala Gln Glu Ala Ala Gln
 355 360 365
 Val Ala Ala Glu Tyr Arg Leu Val His Arg Thr Met Ala Gln Pro Pro
 370 375 380
 Val His Asp Tyr Val Pro Val Ser Trp Thr Ala Leu Val His Val Lys
 385 390 395 400
 Ala Glu Tyr Phe Arg Ser Leu Ala His Tyr His Val Ala Met Ala Leu
 405 410 415
 Cys Asp Gly Ser Pro Ala Thr Glu Gly Glu Leu Pro Thr His Glu Gln
 420 425 430
 Val Phe Leu Gln Pro Pro Thr Ser Ser Lys Pro Arg Gly Pro Val Leu
 435 440 445
 Pro Gln Glu Leu Glu Glu Arg Arg Gln Leu Gly Lys Ala His Leu Lys
 450 455 460
 Arg Ala Ile Leu Gly Gln Glu Glu Ala Leu Arg Leu His Ala Leu Cys
 465 470 475 480
 Arg Val Leu Arg Glu Val Asp Leu Leu Arg Ala Val Ile Ser Gln Thr
 485 490 495
 Leu Gln Arg Ser Leu Ala Lys Tyr Ala Glu Leu Asp Arg Glu Asp Asp
 500 505 510
 Phe Cys Glu Ala Ala Glu Ala Pro Asp Ile Gln Pro Lys Thr His Gln
 515 520 525
 Lys Pro Glu Ala Arg Met Pro Arg Leu Ser Gln Gly Lys Gly Pro Asp
 530 535 540
 Ile Phe His Arg Leu Gly Pro Leu Ser Val Phe Ser Ala Lys Asn Arg
 545 550 555 560
 Trp Arg Leu Val Gly Pro Val His Leu Thr Arg Gly Glu Gly Phe
 565 570 575
 Gly Leu Thr Leu Arg Gly Asp Ser Pro Val Leu Ile Ala Ala Val Ile
 580 585 590
 Pro Gly Ser Gln Ala Ala Ala Gly Leu Lys Glu Gly Asp Tyr Ile
 595 600 605
 Val Ser Val Asn Gly Gln Pro Cys Arg Trp Trp Arg His Ala Glu Val
 610 615 620
 Val Thr Glu Leu Lys Ala Ala Gly Glu Ala Gly Ala Ser Leu Gln Val
 625 630 635 640
 Val Ser Leu Leu Pro Ser Ser Arg Leu Pro Ser Leu Gly Asp Arg Arg
 645 650 655
 Pro Val Leu Leu Gly Pro Arg Gly Leu Leu Arg Ser Gln Arg Glu His
 660 665 670
 Gly Cys Lys Thr Pro Ala Ser Thr Trp Ala Ser Pro Arg Pro Leu Leu
 675 680 685
 Asn Trp Ser Arg Lys Ala Gln Gln Gly Lys Thr Gly Gly Cys Pro Gln
 690 695 700
 Pro Cys Ala Pro Val Lys Pro Ala Pro Pro Ser Ser Leu Lys His Pro

705
Gly Trp Pro

710

715

720

<210> 3
<211> 19025
<212> DNA
<213> Homo sapiens

<400> 3
ccaccctgtc tcaaaaaaaaaa aaaaaaaaggc cagtcacagt ggctcacacc tataatccca 60
acactttggg aggccaaggc aggcatca ctggagctca gaagttcaag accagcctgg 120
gcaacagggc gaaaccctgt ctcattttt tttccctta taaattacaa aagagaaaac 180
gagataaaag cagccccatc agcaattatc acctcatctg caaaaggtcc cggcgctcac 240
tgccgtgccc ctcccggcgc tgccagttc cctgcctgtc acacccaaat tctcctctac 300
tttctcacct cccatcctt cattttccc cctaaatttt taaacttcag aagtgcacaa 360
tacacatgt acaaaccac acatgtaccc ccaaattctaa aataatttaa aaaaacaaaa 420
agggaaactct aaatttttg agtgcagtga tacattctt cgtgcacaaa tccagtaaca 480
cagaagcatg caaagaaaaa ggcagcacca ccccccctcca acacacacac acacacacac 540
acacgcacac acgcacatc gcacgcacac acacgcacac gcacacacgc acacgcacac 600
actccagctt gggcgacaag agcaagactc catctcaata aataaataaa gaaaatagta 660
attgaatatt ttccttcagg aaacagcacc ctgcaggag gggaaagtctt atgaccctca 720
aagtttgaga gcctcttta acttccaaat ggcctctgtc tgctgaacca agaagcctgc 780
aaaacaataa cgtaagaact ggataaccatt tcagtcacac atgcttgctg acagtcactg 840
atatggtaat gcctcctgtc cacatagctg actctgaaga ctgctaagag ggtttgggtc 900
tctgctgtac aggaccttgg cagcctgcaaa ggagatgact cacatggaa tccccacaca 960
agtcacccca gtgtgaactt tggaaagcatc ggcctatgtc caggcccaca ggttaagatgg 1020
ccaggagccc ctgcccattga gggaaacttga accacagac tgctggcgaa ggggggtgggt 1080
gaaggtctca ttagccctgt gtagattcagg cagaagttag aaggacgggt gggaaacccac 1140
caagtggacg acaagctgaa gggctcccaag ggagcagaca cttcaagggc cccaaaaggc 1200
caggagaaaaa aaaaaaaaaa gccgggtatg gtggctcattc cctgtatcc agcactttt 1260
ggaggtttag gcatgtatc tgcttgagcc cagaagtttgg agaccagcc gggcctgggc 1320
aatgtggcga aaccctgtct ctacaaaata tacaattt agccgggtgt ggtgggtcaa 1380
gcctgttagtc ccagctattc aggaggctga ggtgggagga tcacatgagc ccaggaggtg 1440
gaggctgcag tgagctgtca tcgttaccact gcactccggc ctggggaaaca gagtggggcc 1500
ctgtctcaaa aggccaggag tggaaagacag gcccattca ggaggtttca cgtggctggc 1560
agggcctta tgagaaggct gttgctggga ggggcctgtc gcagatggct gggccagacc 1620
acggagctta gccttcagga ttttagatctg gggatgacag gtcctgtgt gttgttgcg 1680
gagccggag cacaggcacc agaatgtcc cagggctcag ctccaaggct cggctgggc 1740
tgtgggtggg cagtgaacgt ggacaagac tgggctttag aggaacttga tgaccaggag 1800
ccgtggttac cgcctgtgcc ctggccttcc tgctttcaaa agggtgtgtt ctgagctgag 1860
gcgagacccca cacgaaatcc gagcgggctc cggagtcacc agacacctag ggaagtatgg 1920
aaggcccgga aggacacaca cagccgggtg agccccgcag ggagctgtc agtctcagg 1980
cgccctgtcc tggggctgca gcccatttcc ccaagcagggt ggtctggag gcaagctgg 2040
tttggaaatgtt gtttcttggaa ataggtcagt ccaggaaaca agctctggaa gtaaagagat 2100
tcggaaagca ggttcgttctt gggaaacaatgt tctacaaaca ggttagttctg aaagcacgtg 2160
ggttccagag gcaggtgtca gaaggatgtg ggttctgtac ggaggttctg gaggaggcgc 2220
ggttctggac ggaggttctg gaaggaggcg ggttctggag gcccgttttg gaagcaggac 2280
gacaccgaca gaggcgccctc ggactggggc caggcctgga gcctccgcctc cgcggcaga 2340
gagaagaaaaa caggcattgtt cggaggactc acacaacac ttgtccctaa caaaaccgtt 2400
tttggaaatgtt ccattgtgaa catttttggaa acaaggctct tagagggtcc cggtggccgg 2460
gtgacaggac gaaacggcgc gaggcggcag actcctggag tccccgcaaa gggagccgag 2520
gagctaggcg cgcccgagtcc agtcccgccc tgactctcag cttgggacgt tccgtatagt 2580
tttttctcc gtttcccgaa ctttcccgcc acgctcagcg gcccggcggc cgcacatgcgc 2640
gtacaacctg ccagccagcc gccccggcgtt cggccggcgtt tgccaggggtt taccgtcccg 2700
cgggcggcggc gagctggccg tccagagccc gccttcctgg aactctgggtt ggctgatata 2760

gctgtccgtc	gaagcggcat	tgccgcctat	tgggcaatgg	ccagcttcgc	acgcccagacc	2820
cgtccccgc	ccagccgcgc	cgcggccgc	ccccactcag	gaggacagt	cggggacccg	2880
cgcgggact	caggagcccg	cggccagggt	gtgcggggcg	gccctagccc	ggctgcggag	2940
cgcgtcgca	gcccgggct	ggctgacccc	gagggacccc	cagcgcagcg	gtgcgggca	3000
tgatcctgga	ggagaggccg	gacggcgcgg	gcgcggcgca	ggagagcccg	cggctgcagg	3060
tgcgcagaac	tggcgccggc	gccccggag	ggcccccggaa	tcccgccctt	ttctgcgcc	3120
ccctcgaggc	gcttccggg	cgcggccctc	ctacgtactc	attcgccccg	gacgcaggca	3180
ggaaactga	ggccagagcc	tgcgtccct	cctccctctga	gctcggtgga	gtgtcttcca	3240
ggccactcat	gtgagccggg	aatgcggac	agccaaagtc	tggatcatcc	tcaccgcgt	3300
agcgggttgg	ggggacgccc	tcctcggtc	ccccctctgg	gcggatgtgg	ggctgggatc	3360
tgtgagcgcc	ctccccacac	cgccatcg	gttcccttcc	ggcacctgta	cagectcctt	3420
ccctagttcg	gtcctccctc	tgcatccgt	caggaactgc	atgcccattg	gtgtcaactgg	3480
tagcagccgg	cagcgaagcc	tcctgggtat	gggaaaccga	gagaggtctt	cccggtctggc	3540
ctcttctcac	ttcccaaacc	tccttccctt	ctgaagtccc	taaccggggg	tgctgactgg	3600
gcaagtggga	ggggtggga	gggctgtgga	gacctgctga	gtctgtgcct	gggaaggagg	3660
ggacgtctgt	gggccttgct	ctgcagccca	gagccgtctt	gttcctcg	gaccagctcg	3720
aggctcccc	agtccctctg	ccagggccctg	gcgcggccacg	cccggccacgg	gtttcagcc	3780
gcgggctgct	cctgctccctc	gccccgggt	agcctttgtat	agcgcgcggc	cctccccc	3840
tctgggacgt	cagactgtgt	tgccttggg	ctgggttctac	tcggctttgg	tgttgggt	3900
taggtctcct	agaggaggag	gccccgggt	cagccagggt	ttggcttcag	gtcaactggc	3960
tggtgatgct	gaccgttagcc	ctcaagggtc	cccttcttc	ccaccccgag	gcgtgcacaga	4020
ggctgcagca	cctcctgggc	actggaggga	aagaggcagc	ctgtgcctgc	ccccctgtgaa	4080
cttgctctgt	caggcgccgc	atgcctgcag	gtggcctggg	acggcacatg	ttgttttggg	4140
tggaatgttt	gggaggctgt	acaaaacaaga	tgtcccagag	ggctccggag	gtgacgcctt	4200
tcaggctggg	ggctgtgcct	gggctccctg	tcctggccct	ccctgggctg	ccaccttgaa	4260
aagttggga	gaagctgttt	ccaggtgtcc	gtgtctctca	cagcgtccag	aatgacccc	4320
acagtcaggg	tactggggag	gggcccgtgg	gaggtggcag	tggggcggag	gcagggccctg	4380
tgtcacacgc	gcaccactca	ggctgtccctg	ccatctggaa	agtcttcccc	gatgcctgct	4440
gccgggctag	agtgaggcct	gttccacccc	catcaggctg	gcccccaaaac	tggccctaaa	4500
gctcagagtt	cagtgggtca	ggggtcggtc	gttcatccac	ttagaggcca	cacctgggccc	4560
tgaggccctg	tggacaggtc	tgggtgactt	gtatttgc	caggcgtgt	gagagcaggc	4620
ttccagcaag	cgttacctg	gtgccaggc	cagtgtaca	gctggagtcc	tgccatttgt	4680
gcctcccaag	ccctgggcct	cagccgtct	gtgaacagg	gtgagtaagt	ggccaaggct	4740
gccaagctgg	gaaggggaga	agcctggcac	ggcccagggt	ggccaaaccca	gtgcccgtcc	4800
ctcccgcagg	ggctgcaggg	gctccgggg	gaggaccaca	aggaatacag	cctggctgt	4860
tgcagaaggt	tctgtggttt	cctggggagg	ccagtgggag	aagggggagc	aggctgcaga	4920
gggagagcgt	tggagcagca	ggtggcagg	gtggctgtc	ccccctcacc	tggctccag	4980
catgccaggt	gggtcagcct	gagggtcccc	agcctggctg	gacaggagca	ccctctgggt	5040
gctggttaca	ggttcccagg	ccccctccca	gttagattgg	gctccaggaa	gagggggtgt	5100
caggaagcac	cagtgcctgg	gtaccccagg	gagcatcaga	gagagtggga	gtccctgccc	5160
tgagtgccca	gtctatgatt	cctctggct	ggcgtctgt	tatagccctg	tgtcccagga	5220
gacacctgt	cagcaatgcc	cttgaattc	tgttccctca	tcagtggggg	gcagagatgg	5280
tgggtcaggt	gggtgctggg	cttccaccct	cctggggctt	ccagttcttg	cattcaggt	5340
agacttcagt	gggggcagag	gagaggggt	cctgagatgg	gtggctgtca	gcatacaggc	5400
tgcccaggcc	cagggtctg	aaggaaaaaa	gctggtttc	tccaggtggg	tgacctctcc	5460
ctggggactg	cctggcccag	ggccagggg	tcctggggga	gagttggaggt	ctggccctgc	5520
tctgtatgtt	tgtgttccc	agacctggc	ttggataact	atctctgcct	tttggccctgc	5580
cccaggtcag	ccccactctg	gccaggggca	cactgtttcc	tcctgggcag	aggagcccca	5640
gtgtcagggt	tggggggctg	tttctgtt	cttcgtccct	ctccatcgag	gcatggccag	5700
gcccttcatg	tgtggctgcc	tctcgggacc	cccacagacc	acagcctctc	tgtccttcc	5760
taatgcaagg	cgaaaatggc	cacagtgggg	tgtcagggca	ccgtggacgt	gggggtgggg	5820
agctccaggt	caccttgc	tccagagggt	ggggaggttg	tagcaggagt	aggggcctga	5880
acgcctgtgt	ctatgcccc	tccactggc	tcaacctca	acccagtgt	gaaagtgggg	5940
catggccgc	ccacctccaa	ggtctaccca	gcctcaaagg	tccgctcg	gtctgctcct	6000
ccgcctgtag	gccgggaagt	cacttggct	gcaggggagca	ctggggtag	ggaggcccgag	6060
gaatggacca	ggcccacagc	aggtgcctgt	ggggctccaa	ggggccagc	tcccgcacagc	6120
tctctgggg	ccaggagggg	agcaggaggc	ttggctgggt	tctgatgccc	gtcgcacagc	6180

cagagccctt aaagctgctg gagccttgc gcggggcctt tgcggggagg gggtagct 6240
 gcgggtgggtg gcacgggggt ctcttagtgc ctgggcagag gcccctgagg tggtagcgcc 6300
 ggtggaaag gtagggatgg gaggcggggg tggcggggcc tcaggttcag ggagcttctc 6360
 agatctgagg cgcccatgcc cctctccac ctgtgggcct ctccagcccc agtccctgaa 6420
 gcagctctgg aggttaattt ttttctggag gaggcggggg tgagaaacgg gacgagggtg 6480
 agggttccca agtgcacatc gcccgtccg ctgtgggtg gtgtccacgg gggcagggtc 6540
 gggctgggg aggccagggt cctggccgg cacaccctcc ttccggctgc ctgtgtccct 6600
 ccctccagct gcctgtgtcc atccctccgg ccgcctgtgt ccctccctcc ggcccctaag 6660
 cgccaactca tcttcagttc agggacctcc gtcaggtcc ctcaccccaag cactcagcag 6720
 gaggctgccc gcctgggtgt ccagggatg gtgcgggtgt ccagcagaca gtacagggt 6780
 ttggggatg gtacagggtgt ctggggatg gcgtgggtgt ccagcagatg gcgcagggt 6840
 ttggggatg gcacagggtgt ctgggggaca atgcgggggt ttggggatg gcgtgggttc 6900
 cagggatgg tgcaggggct tggggatgg tgggggttcc aggggaccgt gtgggggttt 6960
 ggggatggcg tgggttccag gggatggtc aggggcttgg gggatgggtgt gggttccagg 7020
 ggacgggtcg ggggcttggg gatggcgtgg gttccagggg acgggtgtggg ggtttgggga 7080
 tggcgtgggt tccaggggac ggtgcctcat cctccagttc ctgtctctgc cttccatgg 7140
 ccacccatcat gtgactgtgt tcaaattccc cacctcgat aaggaccctt gtcactgcga 7200
 ttaaggaccc cctactccag ggtggcctca tcttaactca ttatatctgc aaagacccta 7260
 ttcttagaaa aattgcagtc acaggtactg ggagtcagga cttgaacctg tctttgtgg 7320
 ggacacaatt caccataat agatggtcac ccgctcagct ggctgctgtg attttgggg 7380
 gctggacgag caggccttct gtctaggaaa tcaaaccctt cttgtataat gggataaaac 7440
 taattaaaat gcacacaaaag atctcggtca cattagcaaa aagaactctc tccagatatac 7500
 taggagaaaa cccagggaaa cacgtgtgag ctcttacgg ggaagacggg aaggcctgag 7560
 agacgtgtgt gcgtggagag ggtgtgggt ccacagaggga aagagaccctg tgcgtgtgca 7620
 cgttggccccc atgaatccgc agcttcatgc agtggtaggt cagttcatg gtggcaagat 7680
 tcacccatcg acgccacaag gtccctggga agaagaggc ctgtctcccg acaaggccgg 7740
 gaagcagtcc caggagccac cagaggcctt gtcttgctgc tgactggcag aatggccag 7800
 gttggccacg cctgactcag accaggctcg ccccagggt ggggtggagt cagttccct 7860
 gagcagttag ccttgagcag cactgtgggt ctcaaagcat ggaaggagtg ggtgtggag 7920
 aggaagcca gccagccac gcctggggc ccaccaggaa gacagccaca ggtagctgca 7980
 aataatcttgc tccgggttgg gaccaggca ttcccacatg gccacggggg agagtggggg 8040
 ttggggaggcc atggtgagag ggagggacac gtgaggatca tggggcagg accccaacac 8100
 cacaagggtg gggtggctg aggcatgaaa ctggatctcc ctagagtggaa atgtaagctc 8160
 cagcacgctg gcaccactga cgacacaggaa gccatcaaag tccagaagggg gccccctgg 8220
 gcacccccc ctcttcgccc atggctgggt ctggcaggcc cccgggggt gcagttctgg 8280
 tgcaaggctc agagtcattt ctctgtggat agggaggcga cgggtgtcgt ttcgcttcga 8340
 gaaccattcc caaagtcaaa cccgacccctc tgcaccaacc atcgggggcc agtggccgccc 8400
 cccagagccct caggagccct gtccctttag cccacccctt aaccacatg ggaatgattt 8460
 ggaggcgtgg gtgagtttgg tggaaaaaaa attgggggg gcaagggggg gatccagaat 8520
 gaaatccaga agcgcagaag gaaggctgtg aggaggcgtg ggccgcctcc tgcagggtc 8580
 ccggagccccc tacttgtca ggctgcctgg tgagaccctg gttctgggt tccttggcag 8640
 gtgccagccct ccccccgttca ccccccacatc gagtcagcag cttacccac ccaccacgtc 8700
 cttctgcatt gactgcctcc tgcctgtc tggcaggcc tgggttcaca ctagttctgt 8760
 ccagccccc cctgtgaggc cagtcaccc cccagccat ggtgaccatc ccgttacccca 8820
 tggcaggat gcaactccctc cagtggctgg cgaggcgcag cttggcgg ggcacccggg 8880
 gtcggcgtgt gatcgctgt ggctccctg cagggtgtg actccctgac gcagatccag 8940
 tgcggccagc tgcagagccg caggcccag attcaccagc agattgacaa ggagctgcag 9000
 atgcggacgg gcgctgagaa cctctacagg tcagtgttt agactgcggc gccccgggg 9060
 cagggccac ctgggtgagg gggcaggac agccacgcag gcagatgtct gccccatggc 9120
 cgggtcacag agacagggtc atgagcagct gggtcctgtt gggcacgtag tacacgtat 9180
 gctcagccat gaccctcaca gacccctcc cgtggccctc tgcggggc tggaggtgcc 9240
 aggaaaccag tgccttcgc ggggtgtcag ctggggaaagc cccaaacatg cacgtggggg 9300
 ctcttcagaa gaggcatgtt tgaggctgag ctgtggcagg tgacggcgcg tcccaagggtt 9360
 ggggacctgg gagggggtgg aagacctggg ctgccttc cttagagcac accgcctgtg 9420
 tgccacacat gtgcgtgtga gtcccttcgc gtcccttag caccgtctac ctcgcgtccc 9480
 ccatccctggc ctcccttggg gacccctggg cccttgcca ggcctgtat caggcacaga 9540
 gaggtgtgtg gtcctcaccacc accatccaag gagtgatgtt tgagtgtgt cgagggtgt 9600

atgagcccc aagaaagccg tgggtgtgag ggaggtgccc ccaggccaga gtcggaacat 9660
gcaggtgctg gggtcggggt gatgaactgt agggggcattt acctgtgagc cccggatcc 9720
caactgctgcc cctgccccac ccatgggggg cagaccctgt cagcgacgtc ctctgcaggg 9780
tgggcttggaa gctttgacag gtcagctggc aggacggctg cagtggcac ggggcctttg 9840
gctctgcctt ggggctggc ttcaactgc cgccgcctcc ctcaagagcca ccagaacaa 9900
ccgggtgaga gagacggctg cctggagct gagctacgtc aactccaacc tgcaagctgct 9960
gaaggaggag ctggaggagc tcagcggtgg cgtggaccct gcggccatg ggaggtgcgg 10020
gtggggcccg ggacacgcacg tgcgtgtatg tgcgtgcacg tgcgtgtgt tgcgtgcacg 10080
tgtgtgcacg catgtgtgtc tctgtgtgtatg tgcgtgtca ttgtctgtgt tgcgtgcgt 10140
gtgcgtgtgt gtgcgtgtcat gtcgtgtgcgtc gtgtgtctgt gtgcgtgtgt ctgtgcacat 10200
ctgtgtgtgt gcgtgtgtct ctgtgtgtatg atgtgtcat tgcgtgtgt tgcgtgtgt 10260
tgcatgcgtc tgcgtgcgtc tgcgtgtgt tgcgtgcacg tgcgtgtgt tgcgtgtgt 10320
tgcgtgtgtc tgcgtgcacg tgcgtgcgtc cgtgtgcacg tgcgtgtgt tgcgtgtgt 10380
tgcgtgtgtc tgcgtgcacg tgcgtgcgtc cgtgtgcacg tgcgtgtgt tgcgtgtgt 10440
tgcgtgtgtc tgcacgtgtc tgcacatatg tgcgtgcgtc cgcacgtgtc tgcgtgtgt 10500
tatgcacgca tgcgtttgtc tgcgtgtgtc cgcgtgcacg tgcgtgtgtc tgcgtgtgt 10560
tgcgtgtgtt tggggcggtt taggacgggtt ggggggtggc cacaggtgca aggatgcccc 10620
ccaggacaca ggcgcacgtc cacacccatg agggaggagg gcaccctgtc ccacagagcc 10680
ctaggagtgg accccgggct gccgtgggca gcagggtttt gccttacagt ctgaagtcga 10740
tgcgtgtgtt tacagcgaag ctgtcaactgt ccccatgatc cccctggggc tgaaggagac 10800
caaggagctg gactggctca caccgtgtaa ggttagtact ggcctccaag ctctgagata 10860
cacggccctg ccctgggacc aagggggtct tggaggctt ctggtccagc tgcgtgtgt 10920
aacagatagg gaaactgagg cccagagggg gggaggctt aaaggggacgc aaggacactg 10980
gcagaaatgg ccacaggggac ccacgcctgt ctgcgttcag ggcggccgtc tgcgtgcgc 11040
cccaggccgg ggctgtatccc atagagtggg tgcgtgtgtt tgcgtgtgtt tgcgtgtgt 11100
aatgccttag gaggatgggg ccttggaaagcc ccagccggag cacagggtac aggctcgccc 11160
atggagggca ccactggctt gggccacac acccagcaact ggcacgtac ggcgtgtgt 11220
agagctagaa cagactggca ctgcgtggca gggcccccacgg ggcggccactg actgtgttcc 11280
gtgtcccgagt cactgagtgg cagatggcac ctgcgtgtgtt ggcacggggca tgaataagga 11340
aacgcacgta aaagtagcgc tgcgtgtgtt ggcacggggca tgcgtgtgtt gtcgtgtgt 11400
cccaggggcca caggggctcc gaccggcata aacccaccgg ggcacggggca tgcgtgtgt 11460
cccaggccct tctctggggc ttccactgag gggcccgagg ccccccacgt gcatggcagc 11520
cagcctgctc tgcgtgtgtt accctccctc caccatgagt ctgtgtgtt ggcacggggca 11580
gagacctcag ggaaggaggc caggcacagg ggtactgtgg atgcacacac ctgcgtgtgt 11640
tcaggagctg atctcagtgc actttggaga ggacggcgc tgcgtgtgtt ggcacggggca 11700
ggagctggag gcccgtggc aggtgtgtgg ttccactgag caccacccatc tgcgtgtgt 11760
tggagacac atgcagaggc tgcgtgtgtt gtcgtgtgtt gtcgtgtgtt gtcgtgtgt 11820
acatctcgag gacgtggggc gacggggcgc ccaggggccc tgcgtgtgtt gtcgtgtgt 11880
ggggcggtgg aggggctccc aggtggctcc ggtgcgtcat gtcgtgtgtt tgcgtgtgt 11940
acgctgccc agggccccc tggctttggcc tcccccggcc ccatgggtct ggcggccatg 12000
ggacttccca gggcgtgtg tgcgtgtgtt gtcgtgtgtt gtcgtgtgtt gtcgtgtgt 12060
ctgcctgca ggcctatgcgg acccccgaccc ggaatggatc ggcacggggca tgcgtgtgt 12120
cctattacaa ccagctgtgc ttccctggatc cgcgttccct caccacccatc aggacccatc 12180
ggctttctt ccactgttag ggctctgcg ggcggaggca ccctggggag gggaggccca 12240
gctcgccggaa ccgtggaaac tccacccagg ctgcaccaac actgcacggat cgcgtgtgt 12300
actggggtcc cggcccacca gctgtgtgtt ggcacggggca tgcgtgtgtt gtcgtgtgt 12360
atcggtgccc tccacacgcg gattggggcg cgccaggacc gtcgtgtgtt gtcgtgtgt 12420
cgcccgcgcta tggaggccctt ccagaggggcc gtcgtgtgtt gtcgtgtgtt gtcgtgtgt 12480
gcacggcgccg gtgcgtgtgtt gtcgtgtgtt gtcgtgtgtt gtcgtgtgtt gtcgtgtgt 12540
ttaggacatc agtccctcag tgcgtgtgtt gtcgtgtgtt gtcgtgtgtt gtcgtgtgt 12600
agcatcccta gctggccgccc ctgagtgctg catggggcag agatggggcag tgcgtgtgt 12660
ctgcctgtgt ggcacccctt ccctccgcag gggccttcag ctcctgtt gtcgtgtgtt gtcgtgtgt 12720
cccatgcgtcc gagcccaacat gtcgtgtgtt gtcgtgtgtt gtcgtgtgtt gtcgtgtgt 12780
tggcccgaggc ccaggaatgt gtcgtgtgtt gtcgtgtgtt gtcgtgtgtt gtcgtgtgt 12840
aagactgcct ggcccacgtg cgcctggcgc aggaggccgc ccaggtgagc tgcgtgtgtt gtcgtgtgt 12900
gtgtcaggat gcaagggggtt gggccgagct ggggtcagag cccaggtcga ggcacggccg 12960
agctctccca ctccttcctt tgcgtgtgtt gtcgtgtgtt gtcgtgtgtt gtcgtgtgt 13020

gggggctggt caggaacctg gggacccgag cctctgcctc cagggatgg cacaaggcag 13080
 caggaactga ggtgccaggg aggctgctgg gatgggtgc ggagcaggtg gaggtgggt 13140
 agggagaagc aggcaccacc tggagagtgg gaggccctcg cgtgcctgcc acatccaccg 13200
 gcaggtggca gccgagatac ggcctgtca ccggaccatg gcccagccac ccgtccacga 13260
 ctacgtgcct gtctccctgga ctgcccgtt gcatgtcaag gccgagact tccgtccct 13320
 gcccactac cacgtagcca tggccctcg cgacgctcc cgtgagtgcc caccgcactt 13380
 gcccatggta ctgccaaggc ccccccgcgc agggctcaca gcctctctgt cccccagcag 13440
 cgaccgaggg agagctcccc acgcacgagc aggtttctt gcagcccccc acctccctta 13500
 agccccgagg ccctgtgtc ccgcaggagc tggaggagcg caggcagctt ggtaaggcgc 13560
 ccatgggtgg agtgccttgg ggctcagatg gtcaccaacg gtggcaggggt gtccccccacc 13620
 accctcatgc tggccac ctgctgtccc cgtgcgtacg agttgggcca cctacctatac 13680
 cctggatggc ctgtgcctga tgggtgacgg cccagcgcag gggccccagg agtgcgtggc 13740
 agctctgag caggtggag accactggga gcagtcatac cttggccctt gcttgcacg 13800
 tggcagagcc ctccgtcaca gccagctctt caccggctg ggcgcaccc ccaacgaaag 13860
 tggctgtat gagccccaca gcctggcg tggccactcc ttctgcccacg tcccaggggcc 13920
 cacggggcca catggtgtgt gacatccca gtcggccgt gcaggcaagg cacacctgaa 13980
 gcgtgcctc ctggggcagg aggaggcgct gcggctgcac gcccgtgtcc gcgtcctgcg 14040
 cgaggtggac ctgttcggg ctgtatctc ccagacgctg cagcgctcac tggccaagta 14100
 tgccgagctc gaccgtgagg atgacttctg tgaggctgccc gaggccccgg acatccagcg 14160
 tgagcagcca gggcctgtctt ggggtggctgc atccctggcc agggtggggg ctttcgtcct 14220
 ggagaaaggg aggctgattt cattaaagat gcagtcacca cgatgaatta aacagcagta 14280
 gcactttcca ggccacgatc acagggacc acagagctgc tggcccttc agggccctgg 14340
 gggatgacca cgctcctcag caccccttc cctgcactgg ctccttaccc tgaggggaag 14400
 cccacagacc caggacaggc atggctggga cttcaggaggg gatgtttggg agccacttgg 14460
 ggcagagggg gctgtgtt cagggcacac ctggggcagc tcctcccaacc attgcagagt 14520
 ggcaggccct ggaggtcaga agcggggcct gtgtgcactc agggtcatgc cctgcgcct 14580
 ggaaaatccc cgaggcaggt ctccacagtc tcccaacttta gctctgtct tacaccctct 14640
 cagctaagac ccaccagaag ccagaggcaca ggtgccacg cttgtcccaag gggaggggc 14700
 ctgacatctt ccatcgctg gtgacccac ccgtcccaag gcaccgcaca gcatggcag 14760
 cttggctgt gtggctctga ccagcacatg gcctcagaca gcccattgtat ggtgtccag 14820
 ccctccccac ccacctgttgc gaaaaacccacg gtgtccctcg gtgcacaggt tggatggatg 14880
 tgctagtcag gtgggtctc ctcagtggtt ggccagctg ggcctctgac ctctgagccc 14940
 ctgccagggg cccctgtctg tggctctcagc caagaaccgg tggcggctgg tggggccctg 15000
 ccacctgacc cgaggagagg gcccgtttgg cctcacgctt cggggagact cgcctgtcct 15060
 catcgctgcc gtcattttccag ggagccaggc cgcggtaagg gcccggccgg ccccttgagg 15120
 ctgagtcctt ggtgccagcc agggtgtcctt gtcctccacc caccgtccaa gtctcccaac 15180
 aggccgctgg cctgaaggag ggcgactaca ttgtgtcagt gaatgggcag ccatgcaggt 15240
 ggtggagaca cgccggaggtg gtacggagc tgaaggctgc gggagaggcg ggcgcagcc 15300
 tgcaggtgtt gtcgtgtctg cccagctcta gactgcccag ttggtgagc ccctggggcc 15360
 ccagaggggc ggtccccagc ttgtgtcaca caccctggcc ctggggctgc cttggatgct 15420
 ttagcaacat tgggaagggg agggtggggct gcaggttaacc ctccctggcc cgcctcctgg 15480
 gcagggggcca cctgtgtctt ggcctccatc tggcagctct tggccgtacc ccgaggatgc 15540
 tgcagccac ccctcactgg gcctctgtat ctcagactg gaggcttctg ggcaggcgc 15600
 tccatccctt aggtttctc taccctcgat ggctgaccca gggttgggtt aaaccatgg 15660
 gcccctgcta tggccacc ctgtggggag ccccaaaaca agccccccgac gtgcgcagcc 15720
 ctcccaggtg gtttcaccc ctccctcgact ggctgcaggt ggggacagagc cagcagtggc 15780
 tgaccacagt ctgtctctgt ccctgtgtca gggggaccgc cggcccgccc tgctggggcc 15840
 cagggggctt ctaaggagcc agagggagca tgggtgcaag acccccgcat ccacgtggc 15900
 cagtccccgg cccctctca actggagccg aaaggcccag cagggcaaga ctggaggctg 15960
 ccccccagccc tggcccttccag tgaagccagc tccgcctca tccttgaagc acccagggtg 16020
 gccgtgaggg ccaggatccc tgacgcctc agccctggct ccagctggca gcaagcaccg 16080
 agcatgcctt ccccccacccag agacactcccg ggcaatgcct gtcccgccctc atgctggagg 16140
 ctgcctcggg cacctgcctg cccattaaag actggtcaga cttgtcttag cccagtgatg 16200
 ggagctgtgg ccttttccacc cacacacaga aggtgccag tccctctgtc ggtctgaggt 16260
 cagttcttg gggctggccc accctgaggg ctccttacag ggtgccttc acagccatcc 16320
 catctgtacc cccgggtctt gtccaccctgt ctgtgcctt gggcacacagc cctgaggct 16380
 cagtcctgccc tccagccaag tttctgtctg gtgcctcaggatg attcctgtctg ggcacccctt 16440

cgctcaactgc ccctccacca tgacgcagcc agacacacccc acagcacccg aagacactcta 16500
 ggcgggtcc cagacatggc cttccccc aaatacttctt gctgtcctgt ctgtgcacag 16560
 agcaagggac tccccacctc tgccgcctgt gctggtcattc atgggctctg tgctggtcaa 16620
 cccagcaagt gtccccgtt cccaggagtc cctgggtcg tggcccagg tctatggtgg 16680
 ccctaagcct gccagccctg ctgcccgcct tgctgtcctg ctctgagcat ggggccacc 16740
 ctccagctcc tgggcgtgtc acttctctt gaggctgggg cctgcatttcccagcccc 16800
 tccccagcct gcttggccg ctccgtctgg cctccacagg ccgtgagctg tcagtgctc 16860
 aacaggggaa agtgagggtct gcctccaggc ctccgtgtac tgggtggaca atggccccc 16920
 aaggccgtcg gcaagaacac cacctccagg acccctacag cagtgggtc aggacttggg 16980
 caccaagagg agaggggtggg aagggtcgca gagtcaggcc tgccacccaaag aggagccacg 17040
 gagccggagc cggagccggag gccccccaccc agggccccag ggcctggcag gttccggaaag 17100
 agacagggcc agcgggagtc attccctgca gccactaggg ggcagccccc acccgctcag 17160
 cagccctggg aggccggcagc ggagggtcgcc ccttggggagg gctgaggcaaa agacccccc 17220
 tagaaaaggcg gccccccagct ctgcgagacc cctgcctctt tggccagttcc cttccgagg 17280
 tccgcagggtg agagcagcct gcctgcattc ccaggctctg gttccagggtt ccaggcccct 17340
 ggcgtgccac ctccctcgat ctccagccaa gaaaatgggg gtgcaagtag ggtgtttggg 17400
 gtcccagaga cgcaggcgcc gggcgccat cttccctggc aggagggcag ggctccccc 17460
 cctgccttag cccgggtggg ggtccaggcc ccccaacttgc ccttggggaa aatccctgt 17520
 ctcagcagaa tggggcaagg tcacgcagg ctcccccagca cgtttaatt tggtaataa 17580
 aactgtggat caaggaggcc agtaggcaact aactggggat gacagggtgg cagccctgtc 17640
 tgggaagtgc agggactccc cacctctgtt ggcctgtcgaa gacccaaactt ggggacagag 17700
 ctgccacctg cctctgtcat ggtggccgccc aggccaccat agcctggggagg gggggcttt 17760
 tgcccagaga gcacgcctctt cccacccgca gacccctggg gtgcgccccaa cccgtcccc 17820
 ccctgcccac acatgcctctt cccctggctg ccaccaagcc tggggcctgtc ctcctggccc 17880
 tgccctctgc cccaggccat ctccctccctt gctgcccccc ccccccggcgt cgttccctc 17940
 tgccacagag gggggccctc acagctgaag ccacacgtgg ctgggacctg gctcccgta 18000
 cccgcctccgt cctgtgaagt ggaggaagcc tgggtgcacag ggggtgctgtg gcgatgtggg 18060
 gggccctgag gtcctgtgc cagccagggg gaggggggcg gagggtctgg gatctgggt 18120
 ccagagttct agtcaaggca gggctggca ggaggggggtt cccctcccccc accttccact 18180
 tggggctgtctt ctccagaaga gaaagccggat gcctaccagc ccagcccccctc agacttggac 18240
 catgccccctc cggcatctgtt gggagtcctg ccagacagcc cctgggtgtc gggaaaggac 18300
 cgcgcctccat cccatctca tccctgcagt agctgggtgc tgccctggcc ggcgcagg 18360
 ctgctgaaca ggggactgccc ctgtccagcc caccacggg acttcaagtc cacacaggca 18420
 gcagagtcgg cagccgggtgg cagagtgggg gggcatcacc atggctccctc agggactgg 18480
 caagggtgtg atgcctggcc tggcaggacc tgcagttca ccccccggggc cagctgtggc 18540
 ctgtgcctccg ccagaggccat gtgcagcccc tggggccagc acacaggagg cggcagctca 18600
 gggtcctgtc ccatctgccc aggctaggaa gcaaagcagg atcaggccgaa ggctgcgagg 18660
 ctgggggaag gcagggtgtt ccgctggggg ggcctcggtc cgcaggctgt ggggtgagag 18720
 ccactgggtg aggcttcccg gggggccacag ctgccccggag gggccggcctc aaggctgtcc 18780
 ctgcagcagc acgtgttgggt gcttgcctgc ccccccggca ggcacccacacc gggccctctg 18840
 tggagccctgt tctctccctt tgaagtcctg cttgcgcact cttggccgtt tctggcttagc 18900
 acctttttgg ctttttaggaa cgggttagtgc tcccttcctc agatggcccg gcctggacac 18960
 accccatgca tgggccttag ccccaactt ctggggccagc ttatcaattt tgggcactgt 19020
 gtcac 19025

<210> 4
 <211> 634
 <212> PRT
 <213> *Mus musculus*

<400> 4
 Met Ile Leu Glu Glu Arg Pro Asp Gly Gln Gly Thr Gly Glu Glu Ser
 1 5 10 15
 Ser Arg Pro Gln Asp Asp Gly Ser Ile Arg Lys Gly Tyr Gly Ser Phe
 20 25 30
 Val Gln Asn Gln Pro Gly Gln Leu Gln Ser His Arg Ala Arg Leu His
 35 40 45

Gln Gln Ile Ser Lys Glu Leu Arg Met Arg Thr Gly Ala Glu Asn Leu
 50 55 60
 Tyr Arg Ala Thr Ser Asn Thr Trp Val Arg Glu Thr Val Ala Leu Glu
 65 70 75 80
 Leu Ser Tyr Val Asn Ser Asn Leu Gln Leu Leu Lys Glu Glu Leu Ala
 85 90 95
 Glu Leu Ser Thr Ser Val Asp Val Asp Gln Pro Glu Gly Glu Gly Ile
 100 105 110
 Thr Ile Pro Met Ile Pro Leu Gly Leu Lys Glu Thr Lys Glu Leu Asp
 115 120 125
 Trp Ala Thr Pro Leu Lys Glu Leu Ile Ser Glu His Phe Gly Glu Asp
 130 135 140
 Gly Thr Ser Phe Glu Thr Glu Ile Gln Glu Leu Glu Asp Leu Arg Gln
 145 150 155 160
 Ala Thr Arg Thr Pro Ser Arg Asp Glu Ala Gly Leu Asp Leu Leu Ala
 165 170 175
 Ala Tyr Tyr Ser Gln Leu Cys Phe Leu Asp Ala Arg Phe Phe Ser Pro
 180 185 190
 Ser Arg Ser Pro Gly Leu Leu Phe His Trp Tyr Asp Ser Leu Thr Gly
 195 200 205
 Val Pro Ala Gln Gln Arg Ala Leu Ala Phe Glu Lys Gly Ser Val Leu
 210 215 220
 Phe Asn Ile Gly Ala Leu His Thr Gln Ile Gly Ala Arg Gln Asp Cys
 225 230 235 240
 Ser Cys Thr Glu Gly Thr Asn His Ala Ala Glu Ala Phe Gln Arg Ala
 245 250 255
 Ala Gly Ala Phe Arg Leu Leu Arg Glu Asn Phe Ser His Ala Pro Ser
 260 265 270
 Pro Asp Met Ser Ala Ala Ser Leu Ser Met Leu Glu Gln Leu Met Ile
 275 280 285
 Ala Gln Ala Gln Glu Cys Ile Phe Lys Gly Leu Leu Leu Pro Ala Ser
 290 295 300
 Ala Thr Pro Asp Ile Cys Pro Asp Gln Leu Gln Leu Ala Gln Glu Ala
 305 310 315 320
 Ala Gln Val Ala Thr Glu Tyr Gly Leu Val His Arg Ala Met Ala Gln
 325 330 335
 Pro Pro Val Arg Asp Tyr Leu Pro Ala Ser Trp Thr Asn Leu Ala His
 340 345 350
 Val Lys Ala Glu His Phe Cys Ala Leu Ala His Tyr His Ala Ala Met
 355 360 365
 Ala Leu Cys Glu Ser His Pro Ala Lys Gly Glu Leu Ala Arg Gln Glu
 370 375 380
 His Val Phe Gln Pro Ser Thr Pro His Glu Pro Leu Gly Pro Thr Leu
 385 390 395 400
 Pro Gln His Pro Glu Asp Arg Arg Lys Leu Ala Lys Ala His Leu Lys
 405 410 415
 Arg Ala Ile Leu Gly Gln Glu Glu Ala Leu Arg Leu His Thr Leu Cys
 420 425 430
 Arg Val Leu Arg Lys Val Asp Leu Leu Gln Val Val Val Thr Gln Ala
 435 440 445
 Leu Arg Arg Ser Leu Ala Lys Tyr Ser Gln Leu Glu Arg Glu Asp Asp
 450 455 460
 Phe Phe Glu Ala Thr Glu Ala Pro Asp Ile Gln Pro Lys Thr His Gln
 465 470 475 480
 Thr Pro Glu Gly Pro Leu Ser Val Phe Ser Thr Lys Asn Arg Trp Gln
 485 490 495
 Leu Val Gly Pro Val His Met Thr Arg Gly Glu Gly Phe Gly Phe

500	505	510
Thr Leu Arg Gly Asp Ser Pro Val Leu Ile Ala Ala Val Val Pro Gly		
515	520	525
Gly Gln Ala Glu Ser Ala Gly Leu Lys Glu Gly Asp Tyr Ile Val Ser		
530	535	540
Val Asn Gly Gln Pro Cys Lys Trp Trp Lys His Leu Glu Val Val Thr		
545	550	555
Gln Leu Arg Ser Met Gly Glu Gly Val Ser Leu Gln Val Val Ser		
565	570	575
Leu Leu Pro Ser Pro Glu Pro Arg Gly Thr Gly Pro Arg Arg Ala Ala		
580	585	590
Leu Leu Trp Asn Gln Arg Glu Cys Gly Phe Glu Thr Pro Met Pro Thr		
595	600	605
Arg Thr Arg Pro Trp Pro Ile Leu Gly Trp Ser Arg Lys Asn Lys Gln		
610	615	620
Gly Lys Thr Gly Ser His Pro Asp Pro Cys		
625	630	